Zhicong Huang

Shien-Ming Wu School of Intelligent Engineering,
South China University of Technology, Guangzhoug, China

Homepage: forwardhuang.github.io
E-mail: zhiconghuang@scut.edu.cn
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ACADEMIC APPOINTMENTS

- **Assistant Professor (特聘研究员、博导)** (Mar. 2020 – Present)
  Shien-Ming Wu School of Intelligent Engineering,
  South China University of Technology, Guangzhou, China
- **Post-doctoral Fellow, under the UM Macao Talent Program** (Jan. 2019 – Feb. 2020)
  State Key Laboratory of Analog and Mixed-Signal VLSI,
  University of Macau, Macao, China

EDUCATIONAL QUALIFICATIONS

- **PhD** in Power Electronics (2018)
  The Hong Kong Polytechnic University, Hong Kong, China
- **MPhil** in Mechanical and Electronic Engineering (2013)
  Huazhong University of Science and Technology, Wuhan, China
- **BSc** in Electrical Engineering and Automation (2010)
  Huazhong University of Science and Technology, Wuhan, China

RESEARCH GRANTS

4. **PI**, National Natural Science Foundation of China, "Research on wireless charging with wide-range output and high power efficiency for electric vehicle," **Ongoing**.
3. **PI**, Science and Technology Planning Project of Guangdong Province, "Design of reconfigurable mixed-signal system-on-chip controller for power electronics systems," **Ongoing**.
2. **PI**, 广州市基础研究计划, "复杂海洋环境下的磁场感应式无线电能传输技术的研究," **Ongoing**.
1. **PI**, South China University of Technology, Research Startup Fund, **Ongoing**.

PUBLICATIONS AND PRESENTATIONS

Journal Papers:

13. **Zhicong Huang**, Dule Wang and Xiaohui Qu*, "A novel IPT converter with current-controlled semi-active rectifier for efficiency enhancement throughout supercapacitor charging process," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, in press.
12. Zhijian Fang, Zhiguo Wei, **Zhicong Huang*** and Fei Liu, "Onboard energy storage system based on interleaved high-conversion-ratio quasi-resonant converter with small characteristic impedance," *IEEE Transactions on Vehicular Technology*, vol. 70, no. 5, pp. 4238–4251, May 2021.

11. **Zhicong Huang**, Guoyu Wang, Jidong Yu and Xiaohui Qu*, "A novel clamp coil assisted IPT battery charger with inherent CC-to-CV transition capability," *IEEE Transactions on Power Electronics*, vol. 36, no. 8, pp. 8607–8611, Aug. 2021.
10. Io-Wa Iam, Iok-U Hoi, **Zhicong Huang***, Cheng Gong, Chi-Seng Lam*, Pui-In Mak and Rui P. Martins, "Constant-frequency and non-communication based inductive power transfer converter for battery charging," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, in press.
9. **Zhicong Huang***, Zhijian Fang, Chi-Seng Lam, Pui-In Mak and Rui P. Martins, "Cost-effective compensation design for output customization and efficiency optimization in series/series-parallel inductive power transfer converter," *IEEE Transactions on Industrial Electronics*, vol. 67, no. 12, pp. 10356–10365, Dec. 2020.
8. **Zhicong Huang***, Chi-Seng Lam, Pui-In Mak, Rui P. Martins, Siu-Chung Wong and Chi K. Tse, "A single-stage inductive-power-transfer converter for constant-power and maximum-efficiency battery charging," *IEEE Transactions on Power Electronics*, vol. 35, no. 9, pp. 8973–8984, Sep. 2020. (**Patent Design**)
7. Zhijian Fang, **Zhicong Huang***, Hang Jing and Fei Liu, "Hybrid mode-hopping modulation for LLC resonant converter achieving high efficiency and linear behavior," *IET Power Electronics*, vol. 13, no. 6, pp. 1153–1162, May 2020.
6. **Zhicong Huang***, Siu-Chung Wong, and Chi K. Tse, "Comparison of basic inductive power transfer systems with linear control achieving optimized efficiency," *IEEE Transactions on Power Electronics*, vol. 35, no. 3, pp. 3276–3286, Mar. 2020.
5. **Zhicong Huang***, Siu-Chung Wong, and Chi K. Tse, "An inductive-power-transfer converter with high efficiency throughout battery-charging process," *IEEE Transactions on Power Electronics*, vol. 34, no. 10, pp. 10245–10255, Oct. 2019.
4. Xiaohui Qu*, Haijun Chu, **Zhicong Huang**, Siu-Chung Wong, Chi K. Tse, Chunting Chris Mi and Xi Chen, "Wide design range of constant output current using double-sided LC compensation circuits for inductive power transfer applications," *IEEE Transactions on Power Electronics*, vol. 34, no. 3, pp. 2364–2374, Mar. 2019.
3. **Zhicong Huang**, Siu-Chung Wong*, and Chi K. Tse, "Control design for optimizing efficiency in inductive power transfer systems," *IEEE Transactions on Power Electronics*, vol. 33, no. 5, pp. 4523–4534, May 2018.
2. **Zhicong Huang**, Siu-Chung Wong*, and Chi K. Tse, "Design of a single-stage inductive-power-transfer converter for efficient EV battery charging," *IEEE Transactions on Vehicular Technology*, vol. 66, no. 7, pp. 5808–5821, Jul. 2017.
1. **Zhicong Huang**, Siu-Chung Wong*, and Chi K. Tse, "Revisiting stability criteria for DC power distribution systems based on power balance," *CPSS Transactions on Power Electronics and Applications*, vol. 2, no. 1, Mar. 2017. (**Invited Paper**)

Selected Conference Papers:

6. **Zhicong Huang**, Io Wa Iam, Iok U Hoi, Chi-Seng Lam, Pui-In Mak and Rui P. Martins, "Self-contained solar-powered inductive power transfer system for wireless electric vehicle charging," in Proceedings, *IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC)*, Macao, China, 2019, pp. 1-6. (**Best Track Paper Award**)
5. **Zhicong Huang**, Zhijian Fang, Chi-Seng Lam, Pui-In Mak and Rui P. Martins, "Design of

series/series-parallel compensated inductive power transfer converter as wireless grid to vehicle interface," in Proceedings, *IEEE Vehicle Power and Propulsion Conference (VPPC)*, Hanoi, Vietnam, 2019, pp. 1-5.

4. **Zhicong Huang**, Zhijian Fang, Chi-Seng Lam, Pui-In Mak and Rui P. Martins, "Efficiency optimization of series/series-parallel IPT system with load-independent output voltage and zero input phase angle," in Proceedings, *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, MD, USA, 2019, pp. 3358–3362.
3. Zhijian Fang, **Zhicong Huang**, Hang Jing, Guozhen Hu, Junhua Wang and Liang Tao, "A novel modulation method of LLC resonant converter with linear model and high efficiency," in Proceedings, *IEEE Energy Conversion Congress and Exposition (ECCE)*, Baltimore, MD, USA, 2019, pp. 5152–5155.
2. **Zhicong Huang**, Siu-Chung Wong, and Chi K. Tse, "Fast linear control for maximum energy efficiency of wireless power transfer systems," in Proceedings, *International Future Energy Electronics Conference and ECCE Asia (IFEEC 2017 - ECCE Asia)*, Kaohsiung, Taiwan, 2017, pp. 19–24.
1. **Zhicong Huang**, Siu-Chung Wong, and Chi K. Tse, "Design methodology of a series-series inductive power transfer system for electric vehicle battery charger application," in Proceedings, *IEEE Energy Conversion Congress and Exposition (ECCE)*, Pittsburgh, PA, USA, 2014, pp. 1778-1782.

Tutorials:

1. **Zhicong Huang**, "Efficiency optimization in wireless inductive power transfer for electric vehicle charging," in Proceedings, *8th International Conference on Power Electronics Systems and Applications (PESA)*, Hong Kong, China, Dec. 2020.

US Patents:

1. **Zhicong Huang**, Chi-Seng Lam, Pui-In Mak and Rui P. Martins, "Wireless charging circuit and system," Application No. 16711465, US Patent, Pending Application.

AWARDS

Academic:

2. **Best Track Paper Award**, 2019 IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC2019).
1. **Recipient of UM Macao Talent Programme** (2018)

Industrial:

2. **优秀奖**, 2020 年南方电网公司首届 "南网创新杯" 创新创业大赛.
1. **Outstanding Prize**, 2020 Bank of China Trophy One Million Dollar Macao Regional Entrepreneurship Competition.

ACADEMIC SERVICE

Peer Review for Journals:

- IEEE Transactions on Power Electronics
- IEEE Transactions on Industrial Electronics
- IEEE Journal of Emerging and Selected Topics in Power Electronics
- IEEE Transactions on Vehicular Technology
- IEEE Transactions on Circuits and Systems I: Regular Papers
- IEEE Transactions on Circuits and Systems II: Express Briefs
- IEEE Transactions on Transportation Electrification
- International Journal of Circuit Theory and Applications

Conference Organization:

- Session Co-Chair, Special Seesion of "*Static and Dynamic Wireless Charging for Aotomated Guided Vehicle*", the 46th Annual Conference of the IEEE Industrial Electronics Society, 2020
- Session Chair, Seesion of "*Electric and Hybrid Vehicles*", the 11th IEEE PES Asia-Pacific Power and Energy Engineering Conference, 2019